

Standardization of Classification: Lead by Example

Presented by Jim Ross

**Final Seminar of Project
EuroGeoSource,
Brussels
12th March 2013**

Energy and Minerals Resource Classification

- **Resource classification systems**
- **Is there a problem?**
- **Is there a solution?**

Purpose of Resource Classification

- **Manage the full resource base**
 - Requirement for both governments and companies
 - Need to understand both short-term potential (reserves) and long-term potential (discovered and undiscovered resources)
- **Government reporting externally**
 - Government reporting is variable, but full disclosure of resource base would provide a basis for meaningful global studies
 - Usefulness is currently limited by inconsistent use of terminology and scope of disclosure
- **Corporate reporting externally**
 - Corporate reporting is generally defined by securities regulators and stock exchanges, but regulations vary significantly
 - Main goal is to protect investors and disclosures are limited

Resource Classification Systems

- **May cover most/all of the resource base or may cover only a very limited subset**
 - Depends on purpose of system
- **Will define and use the same terms differently**
 - What are proved (proven) reserves?
 - What are resources?
 - Is a mineral resource the same as a contingent resource?
- **Significant overlap in terms of application**
 - e.g. synthetic oil/gas from coal, oil sands, oil shales, uranium
- **Do not cover renewable energy resources**
 - No basis for comparison with non-renewables

Energy and Minerals Resource Classification

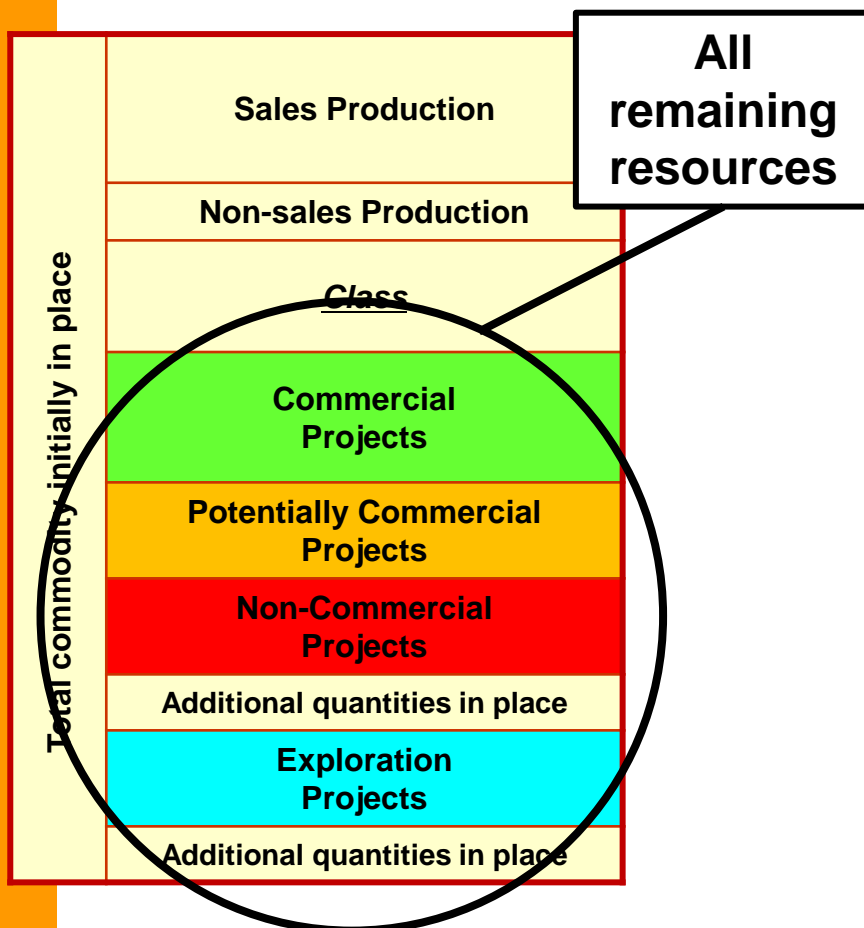
- **Resource classification systems**
- **Is there a problem?**
- **Is there a solution?**

Is there a problem?

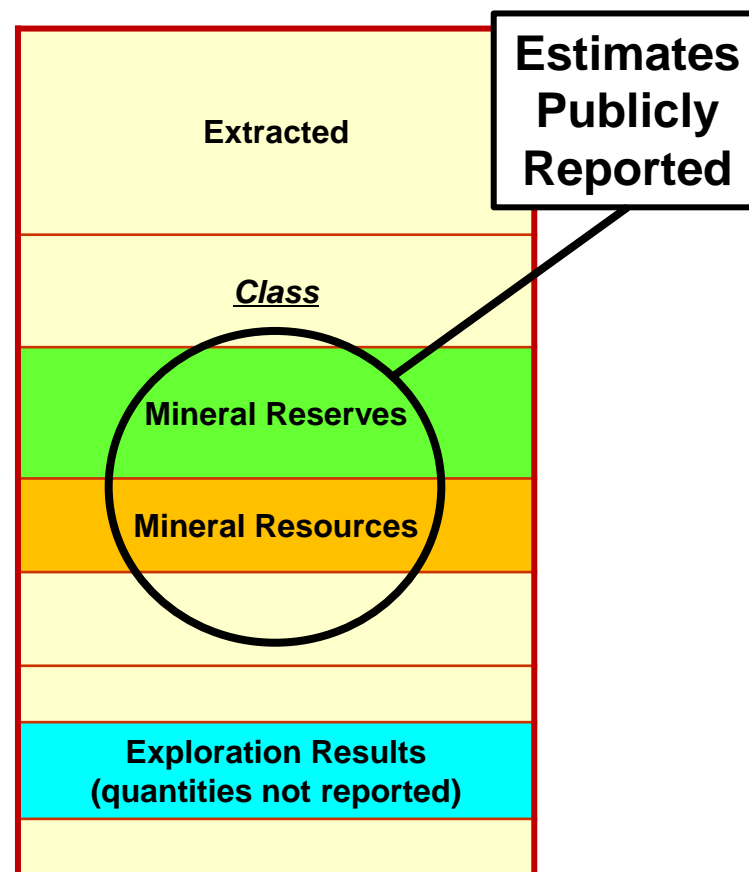
- **Yes, if you want to ...**
 - **Compare different energy commodities with each other**
 - **Compare estimates of the same commodity based on different classifications**
 - **Communicate with others what the estimates represent**
 - **Understand a country's potential based only on corporate reporting**
 - **Compare non-renewables with renewables**

Limited coverage of resource base

UNFC-2009

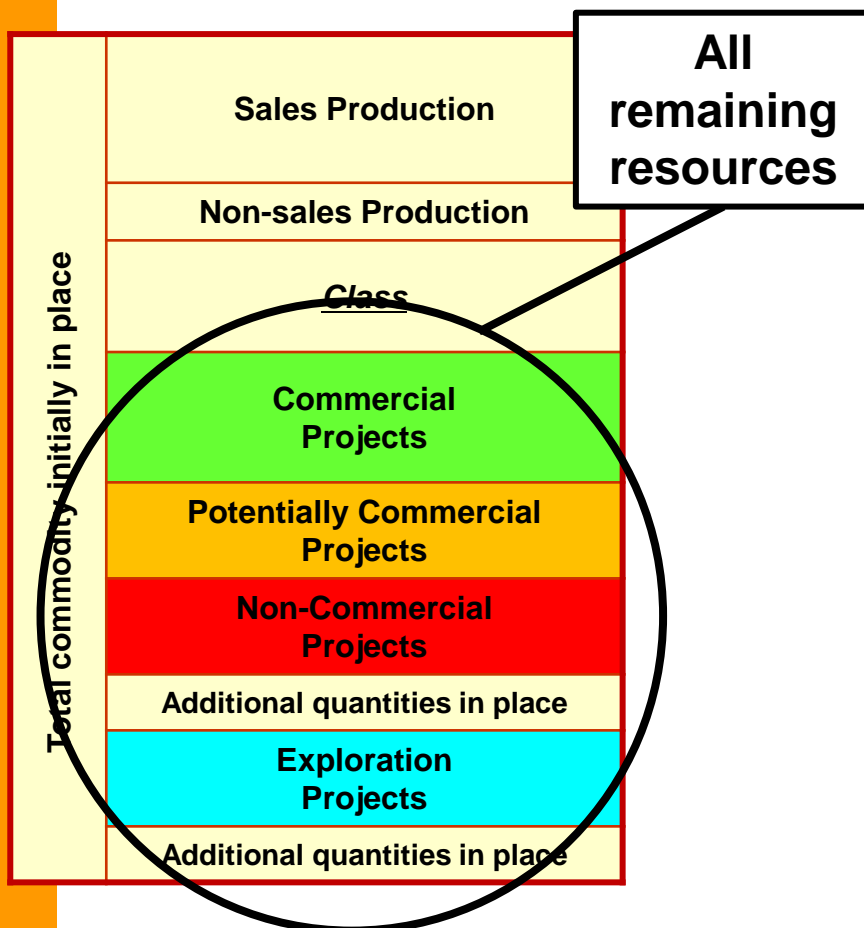


CRIRSCO

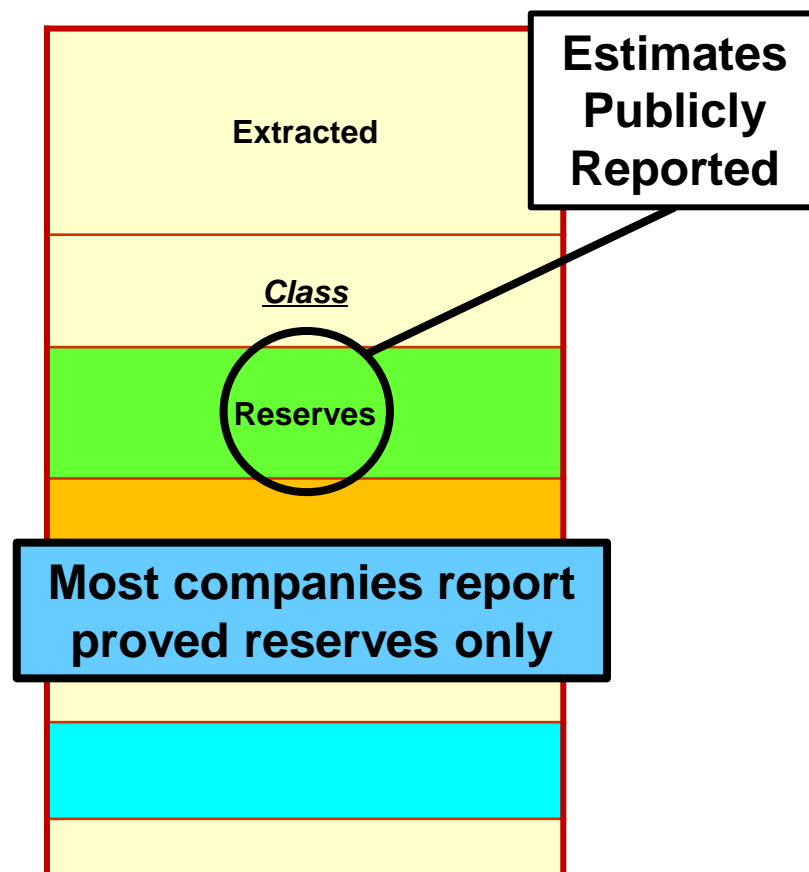


Limited coverage of resource base

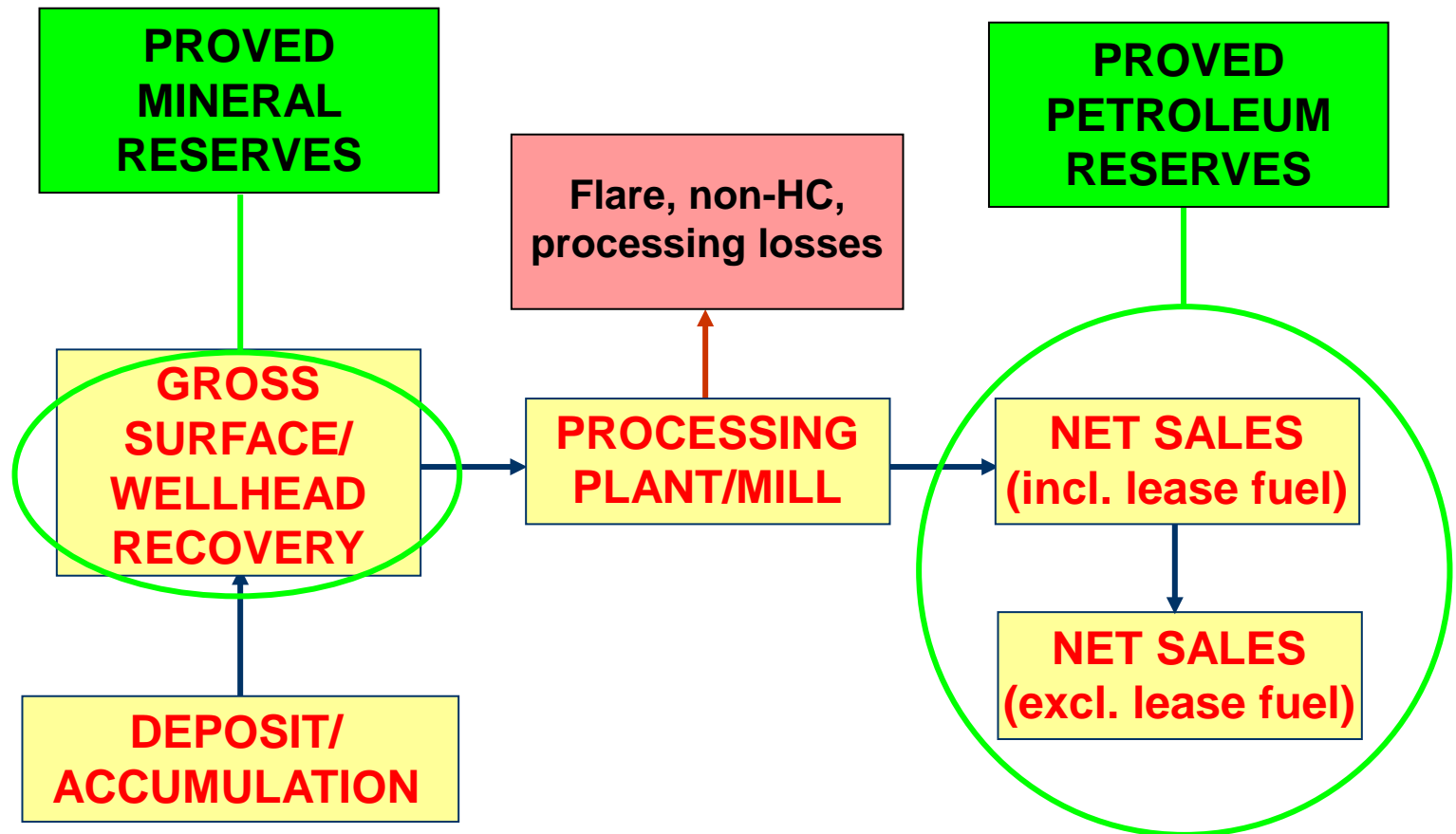
UNFC-2009



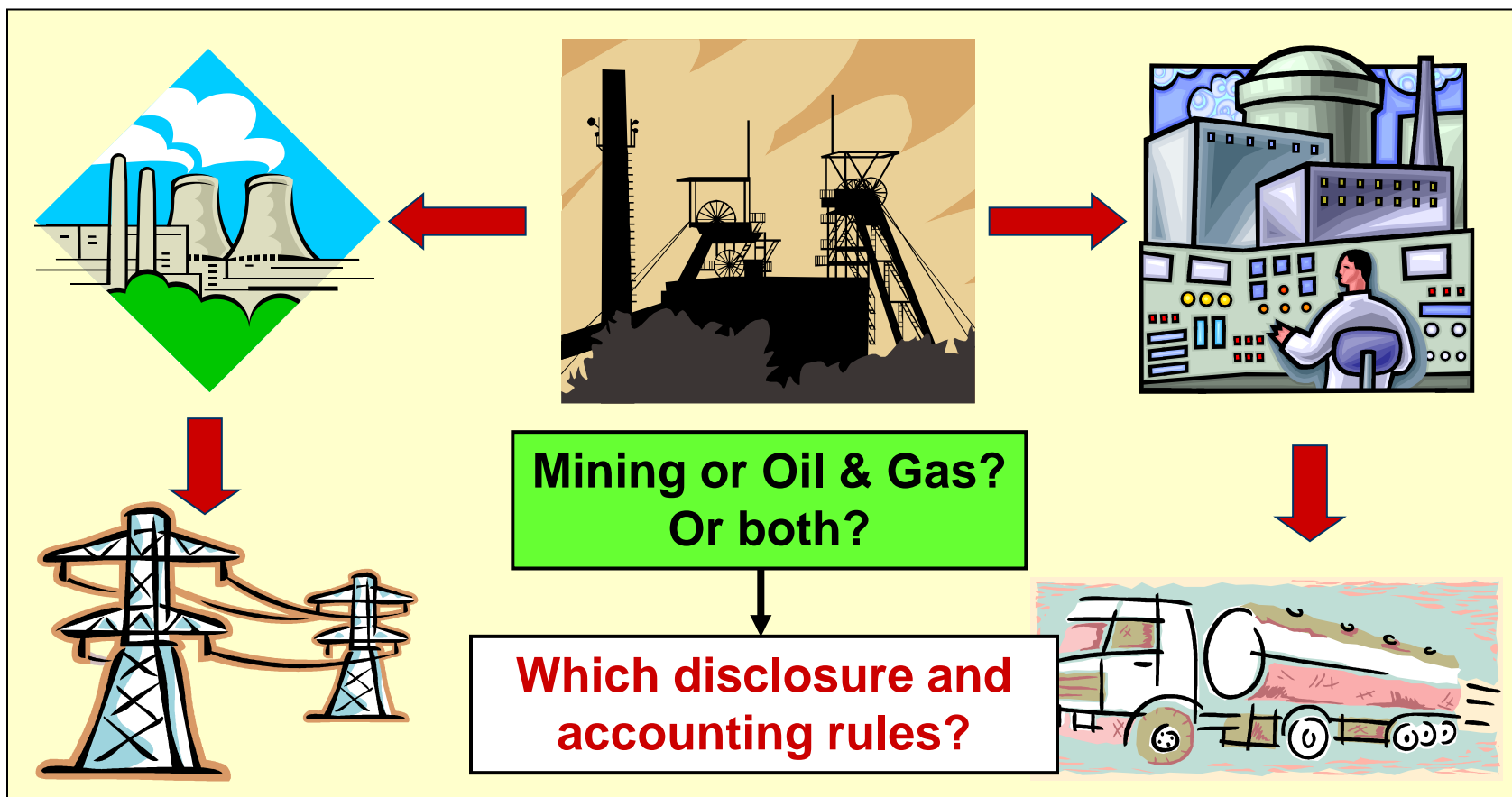
SEC (oil/gas)



What are proved (proven) reserves?



Coal mining: an oil & gas producing activity?



THE DISTINCTION BETWEEN INDUSTRIES IS NOT CLEAR

Energy and Minerals Resource Classification

- **Resource classification systems**
- **Is there a problem?**
- **Is there a solution?**

The Relationship

UNFC-2009

PRMS

CRIRSCO

Total commodity initially in place	Sales Production	Production	Extracted
	Non-sales Production		
	<u>Class</u>	<u>Class</u>	<u>Class</u>
	Commercial Projects	Reserves	Mineral Reserves
	Potentially Commercial Projects	Contingent Resources	Mineral Resources
	Non-Commercial Projects		Not reported
	Additional quantities in place	Unrecoverable	Not reported
	Exploration Projects	Prospective Resources	Exploration Results
	Additional quantities in place	Unrecoverable	Not reported



UNFC

Classification Framework and Category Definitions

Generic Specifications

Bridging Document

Bridging Document

Bridging Document

**Petroleum Specifications
SPE-PRMS**

**Solid Mineral Specifications
CRIRSCO**

Other Aligned Systems

Other aligned systems ...

- **Under review and/or development of Bridging Documents to UNFC-2009:**
 - Norwegian Petroleum Directorate
 - NEA/IAEA Red Book (uranium, thorium)
 - Renewable energy resources (wind, biofuels, etc.)

Conclusions

- **Quantities can be estimated using current well-established commodity-specific systems e.g. CRIRSCO family of codes (JORC, PERC, etc.), PRMS, NPD, Red Book**
- **Reporting under these systems can continue unchanged, but the same quantities can also be reported under the UNFC using the numerical codes**
- **The UNFC can be used for estimates not covered by the CRIRSCO codes and hence cover the full resource base**
- **The reporting is then independent of commodity type, extraction methodology and ambiguous terminology**

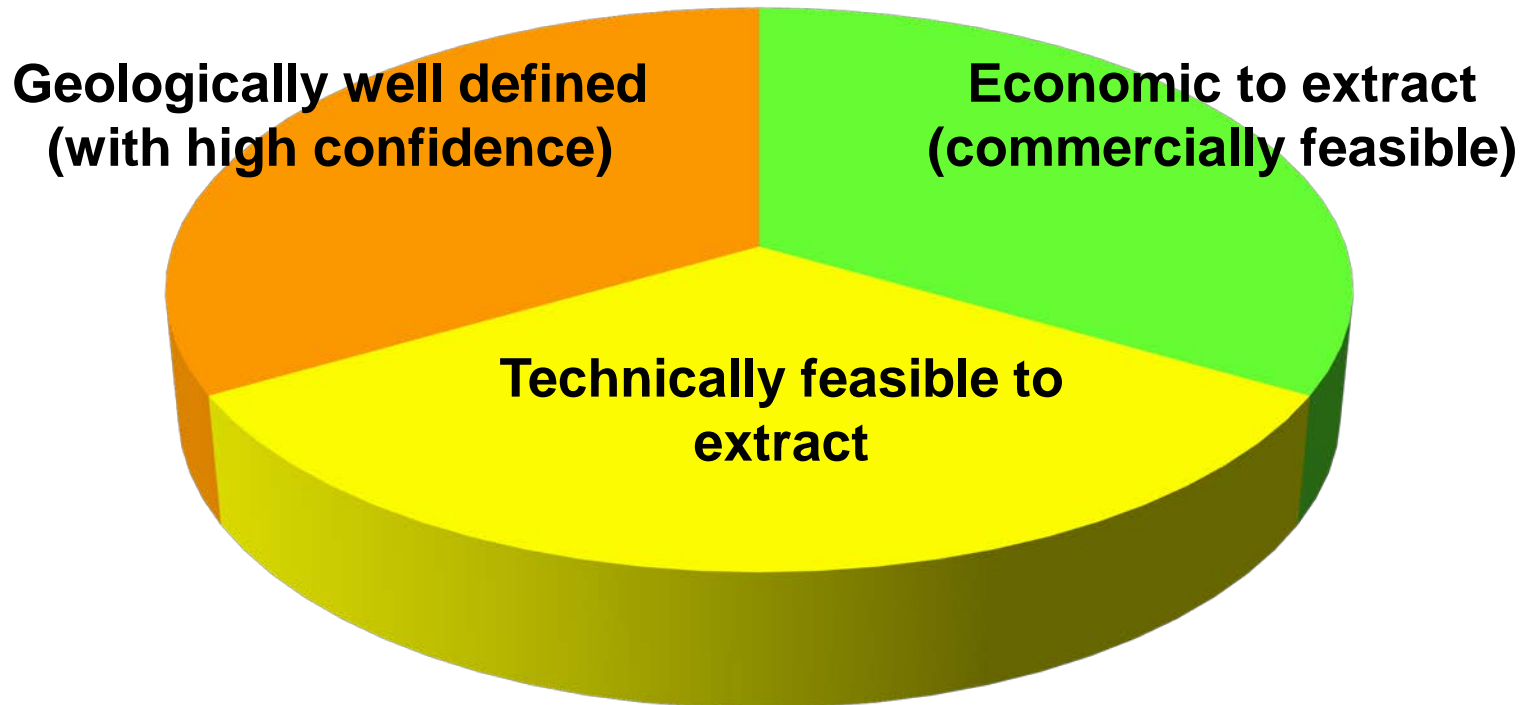
Standardization through harmonization

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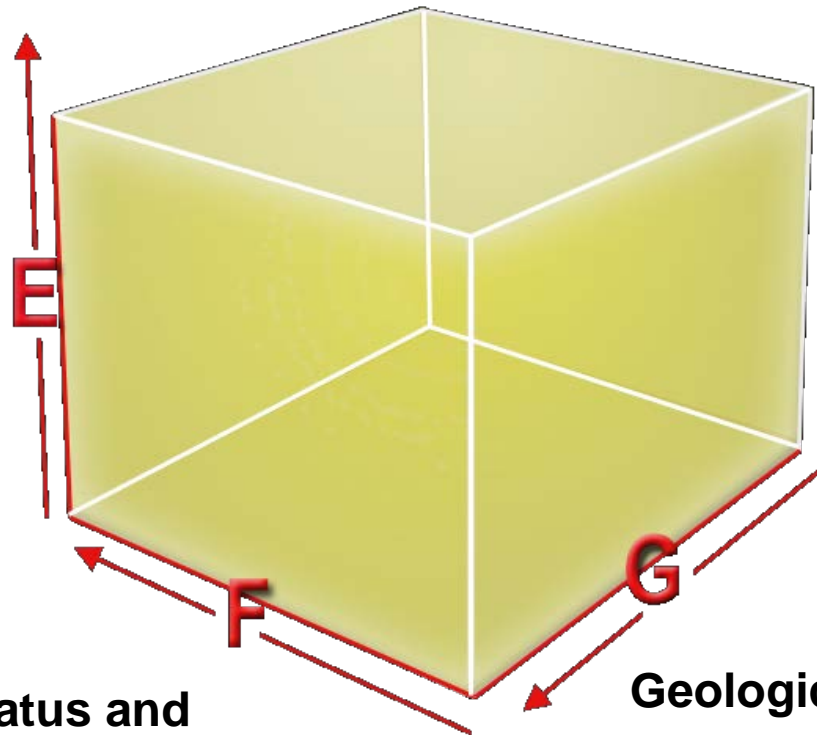
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Proved reserves must be ...



UNFC – Three Criteria

Economic and social
viability (E axis)

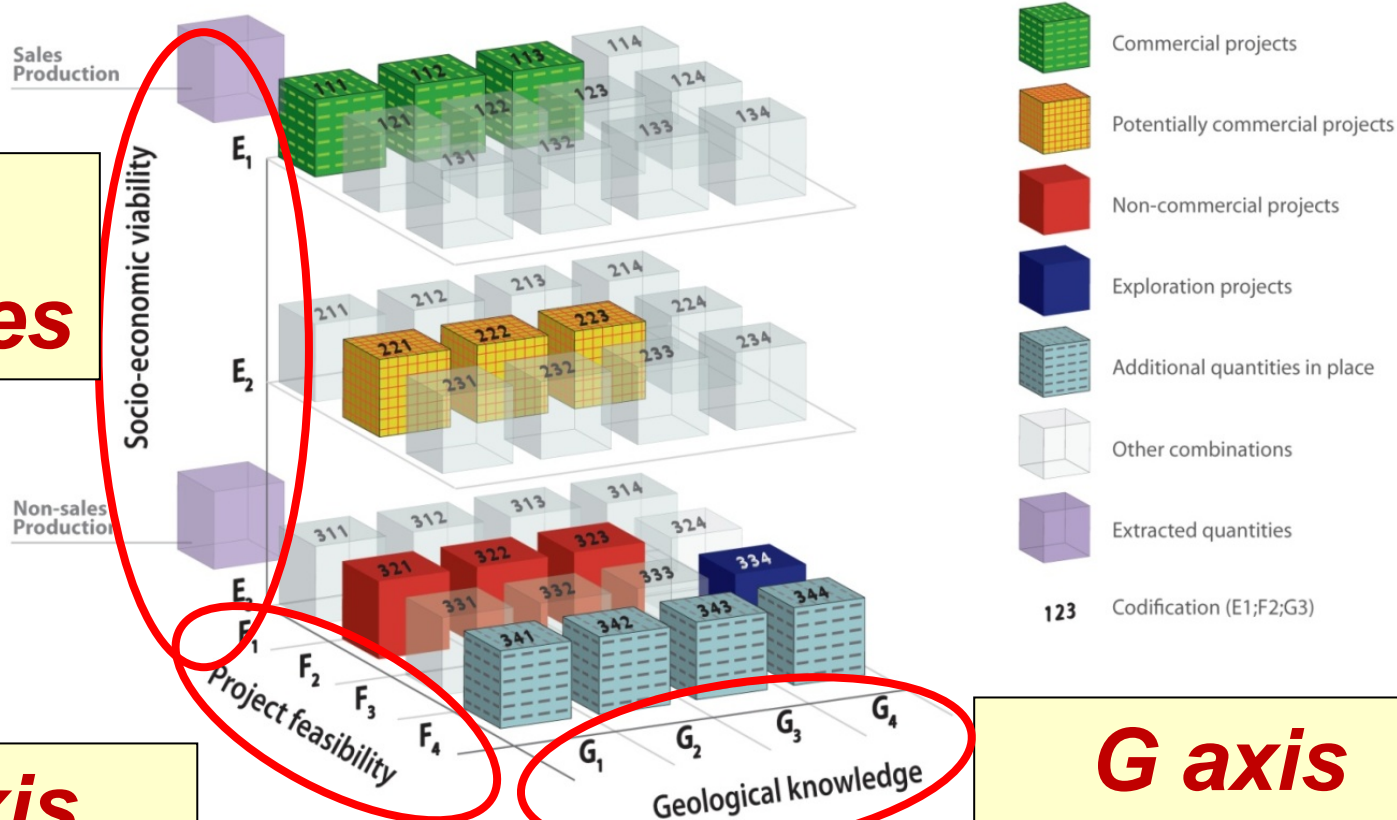


Field project status and
feasibility (F axis)

Geological knowledge
(G axis)

UNFC-2009 – How it works

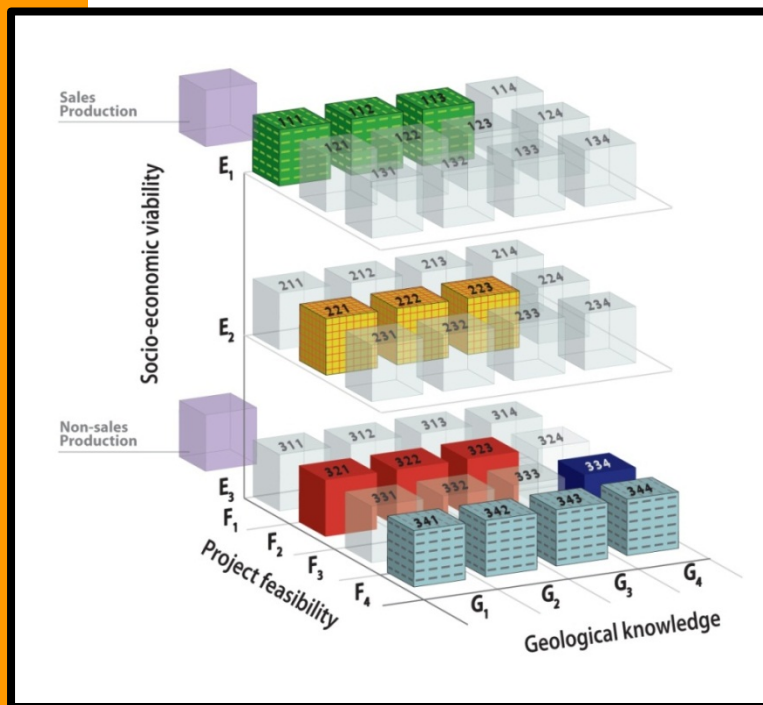
E axis categories



G axis categories

F axis categories

UNFC-2009 – How it works



Category	Definition
E1	Extraction and sale has been confirmed to be economically viable.

Category	Definition
F1	Feasibility of extraction by a defined development project or mining operation has been confirmed.

Category	Definition
G1	Quantities associated with a known deposit that can be estimated with a high level of confidence.

UNFC Class: 111

UNFC-2009

Total commodity initially in place	Extracted	Sales Production			
		Non-sales Production			
		<i>Class</i>	<i>Categories</i>		
			E	F	G
	Future recovery by commercial development projects or mining operations	Commercial Projects	1	1	1, 2, 3
	Potential future recovery by contingent development projects or mining operations	Potentially Commercial Projects	2	2	1, 2, 3
		Non-Commercial Projects	3	2	1, 2, 3
	Additional quantities in place associated with known deposits		3	4	1, 2, 3
	Potential future recovery by successful exploration activities	Exploration Projects	3	3	4
	Additional quantities in place associated with potential deposits		3	4	4